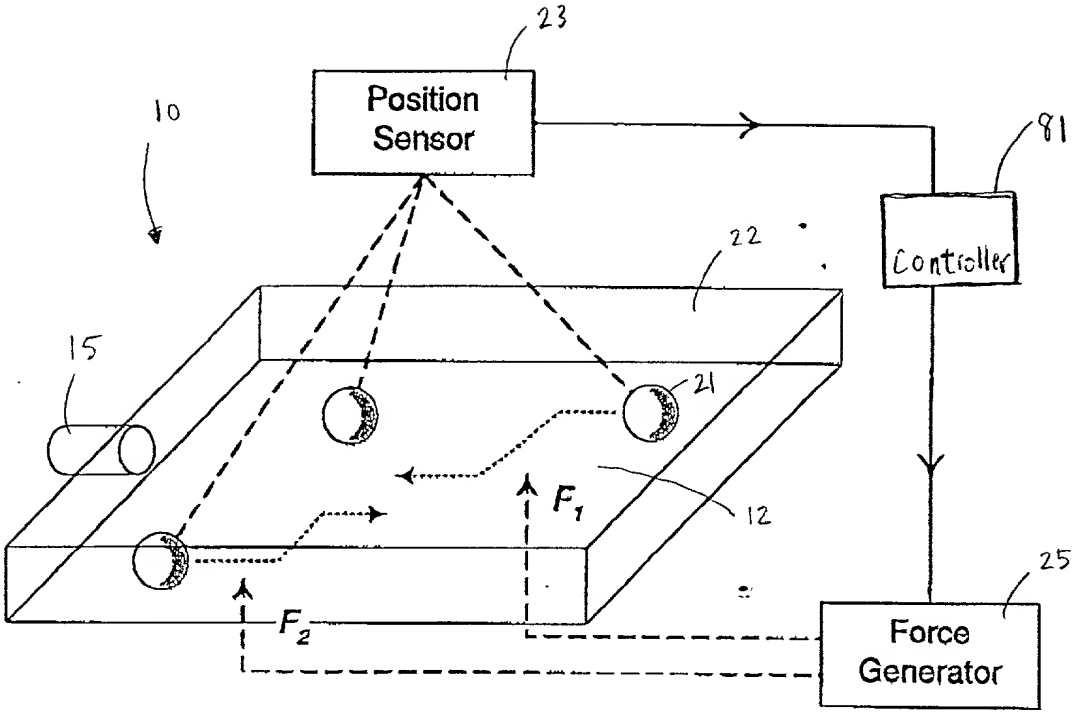
23
Position Sensor
10
81
Controller
22
15
21
F_1
12
25
F_2
Force Generator

FIG. 1

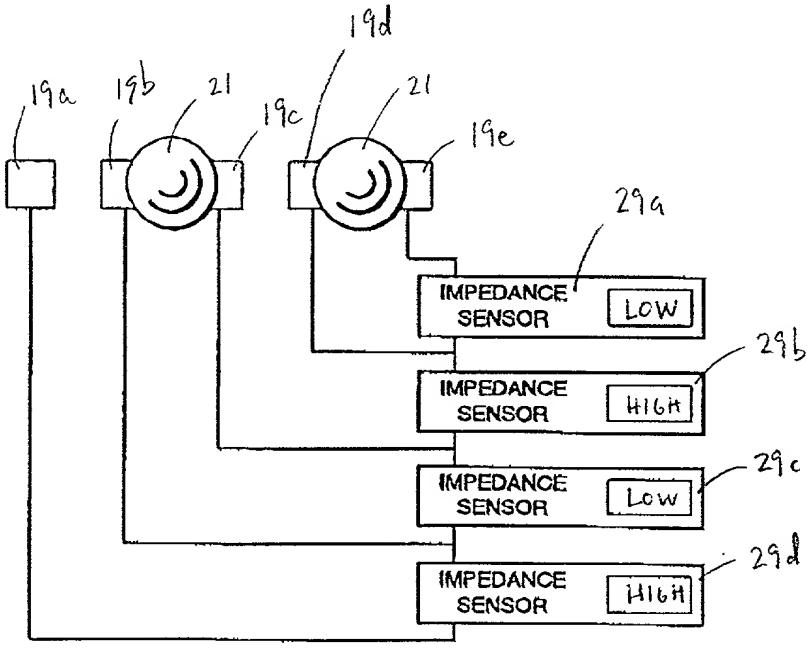
19d
19a
19b
21
19c
21
19e
29a
IMPEDANCE SENSOR
LOW
29b
IMPEDANCE SENSOR
HIGH
29c
IMPEDANCE SENSOR
LOW
29d
IMPEDANCE SENSOR
HIGH

FIG. 3

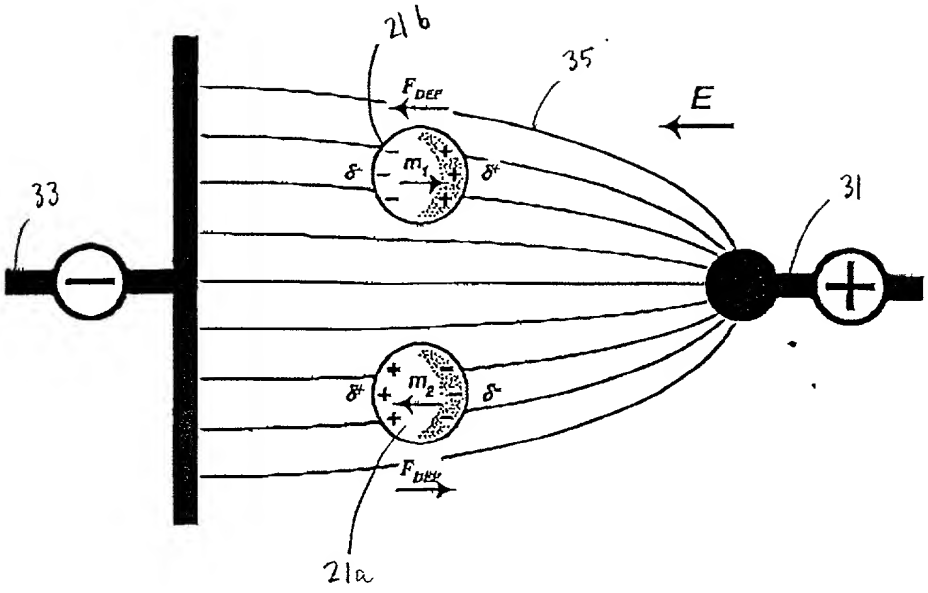

FIG. 2

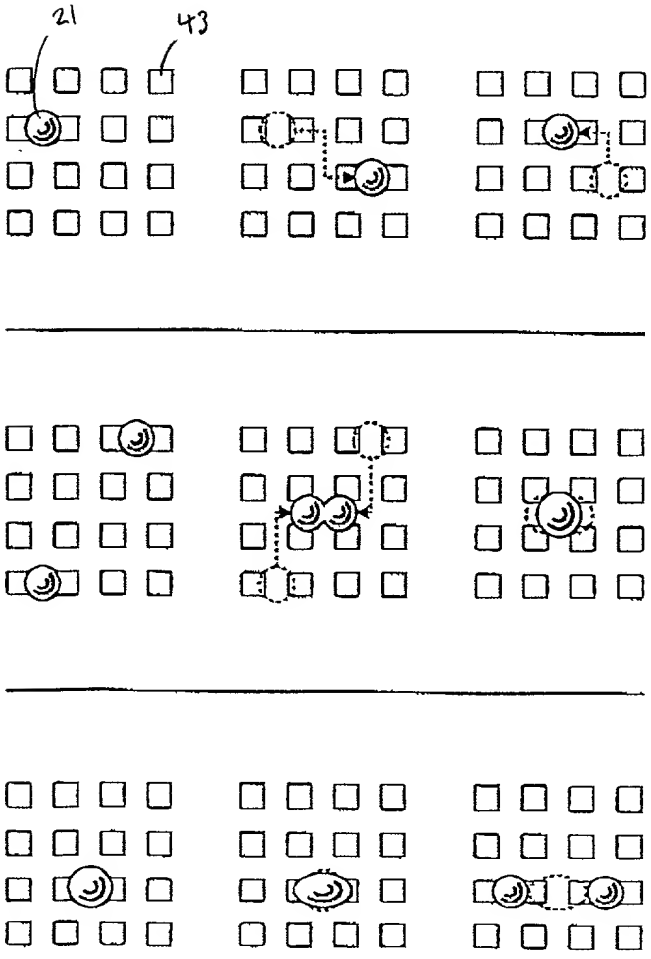

FIG. 12

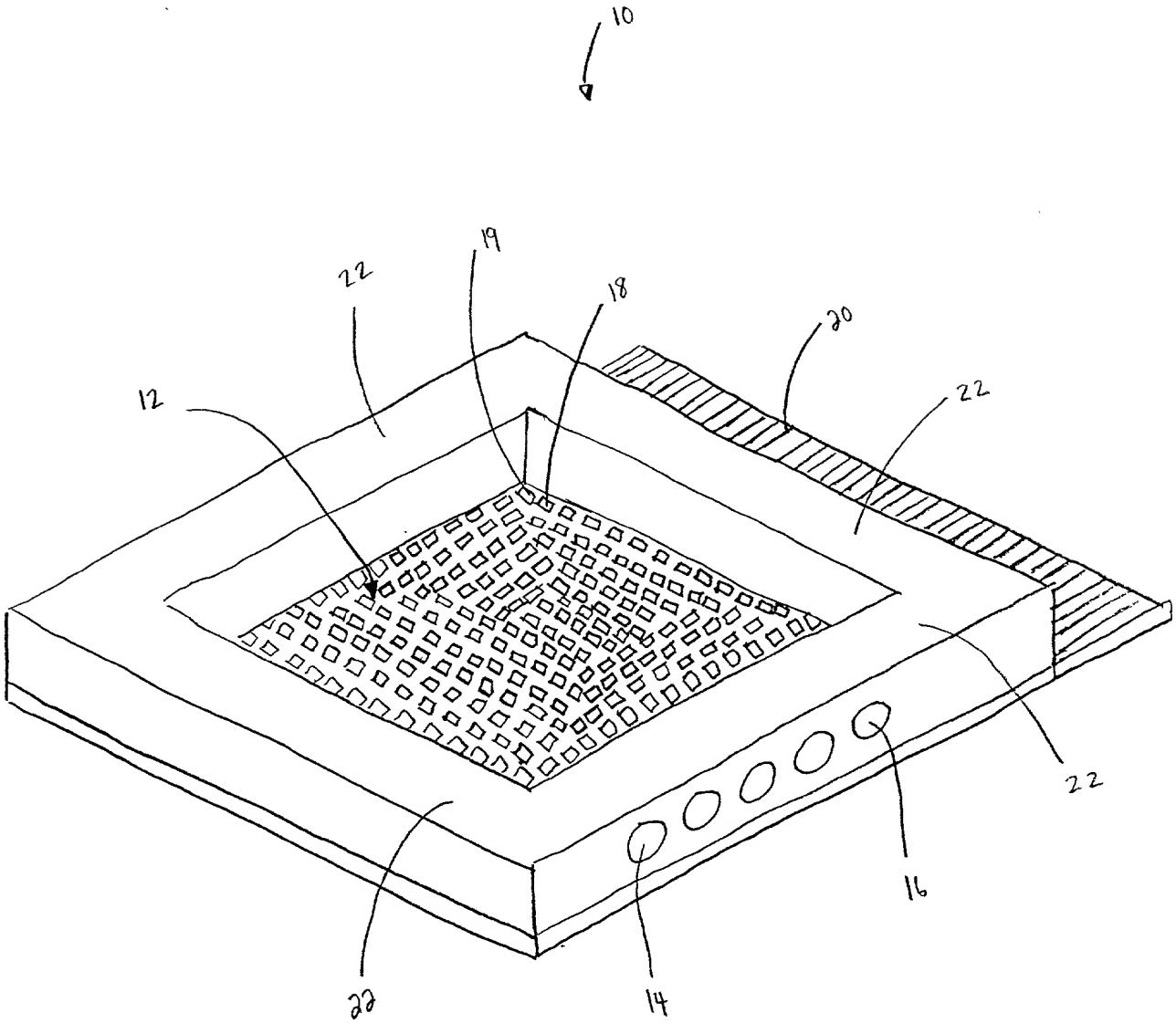

FIG. 4

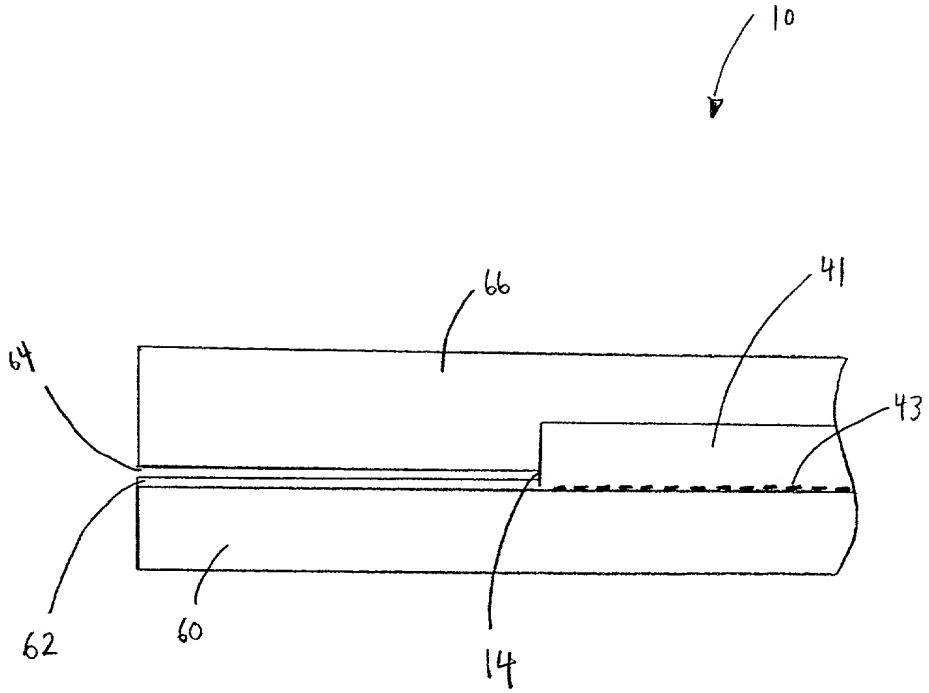

FIG. 5

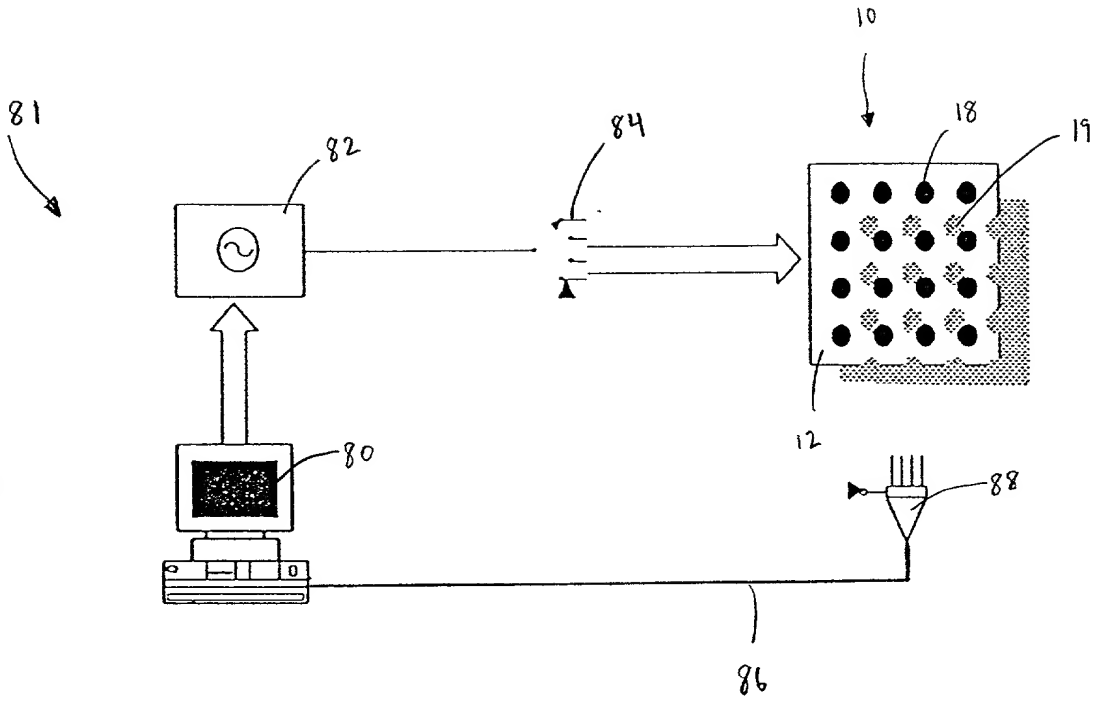

FIG. 6

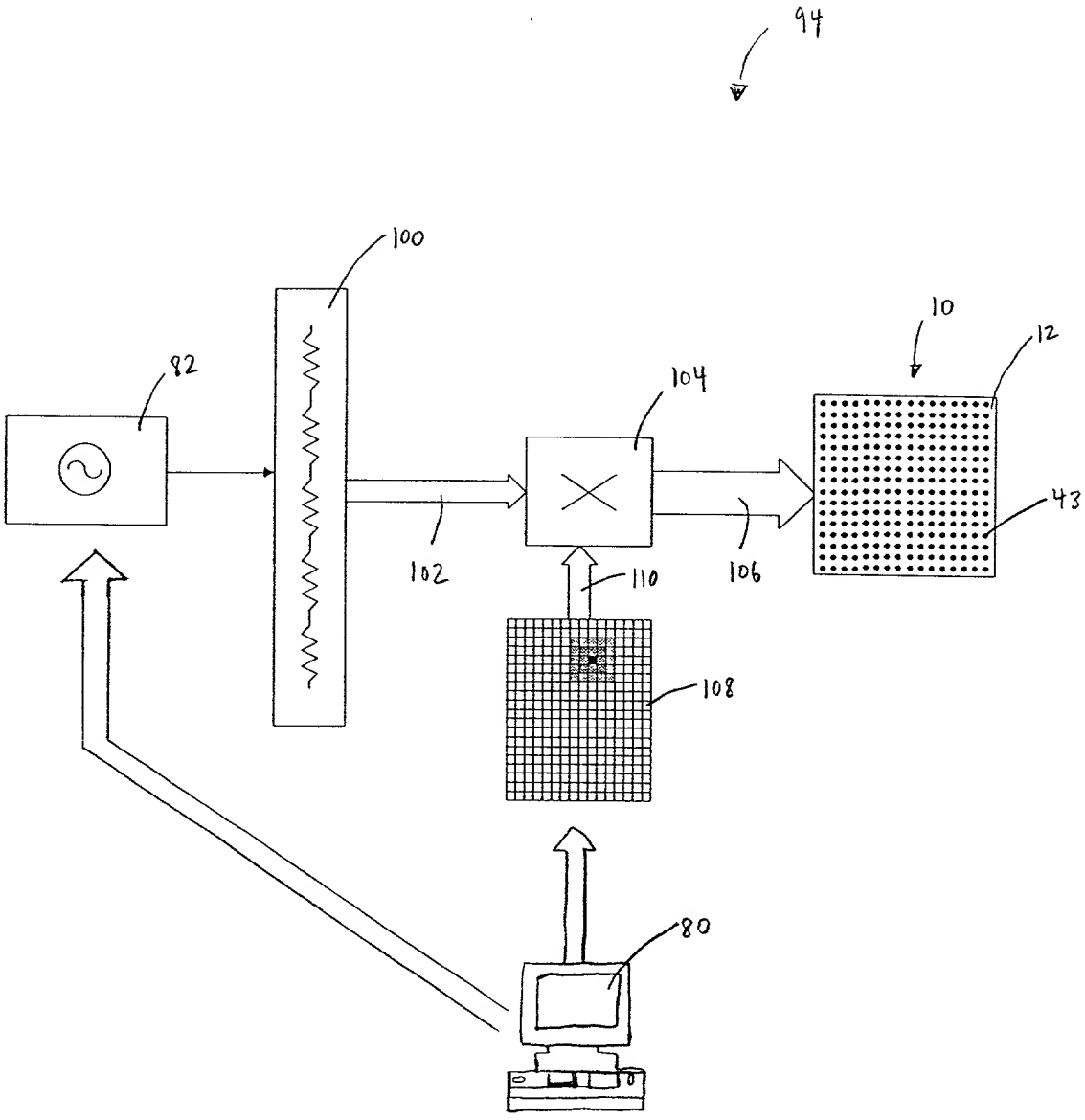

FIG. 7

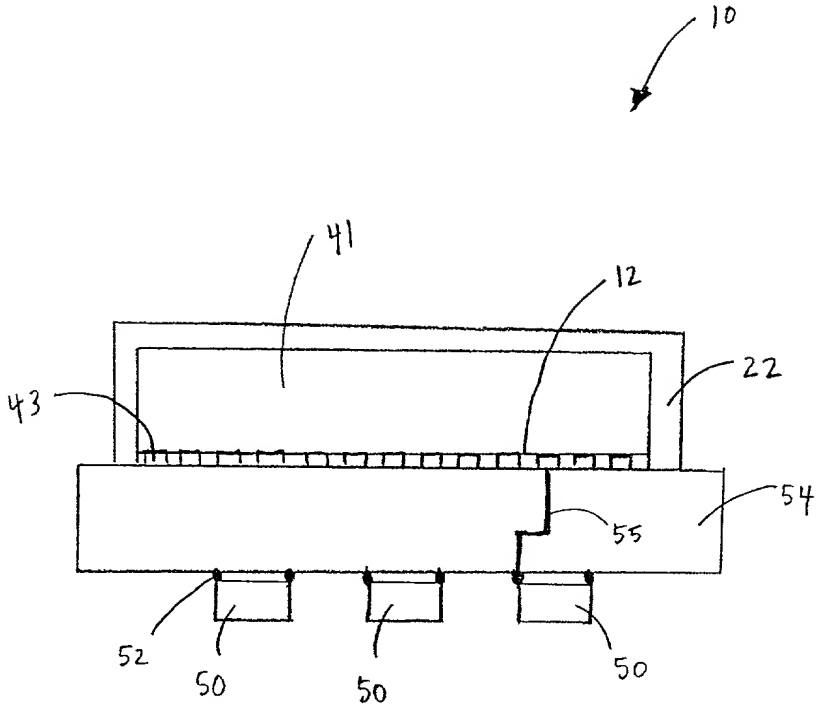

FIG. 8

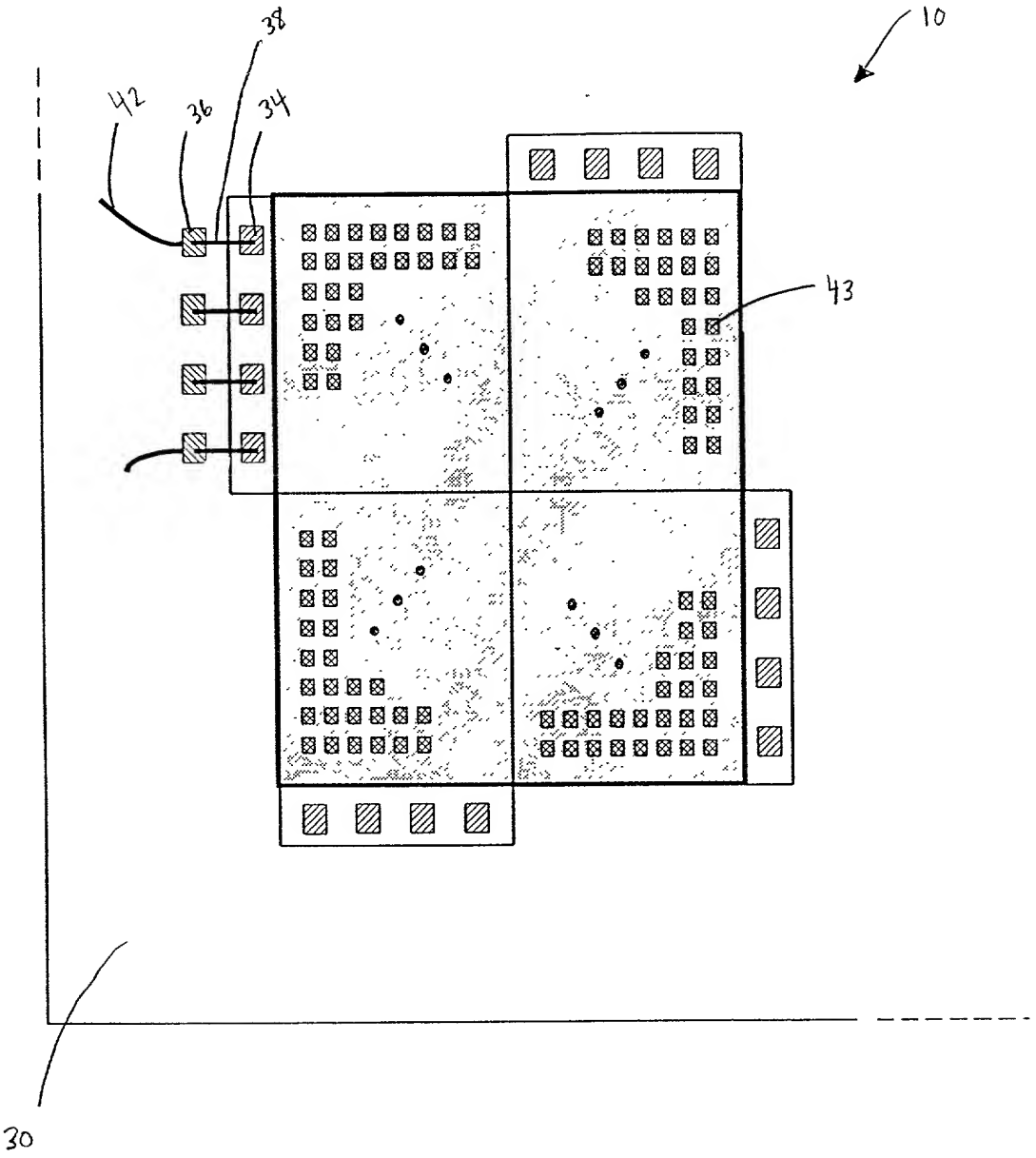

FIG. 9

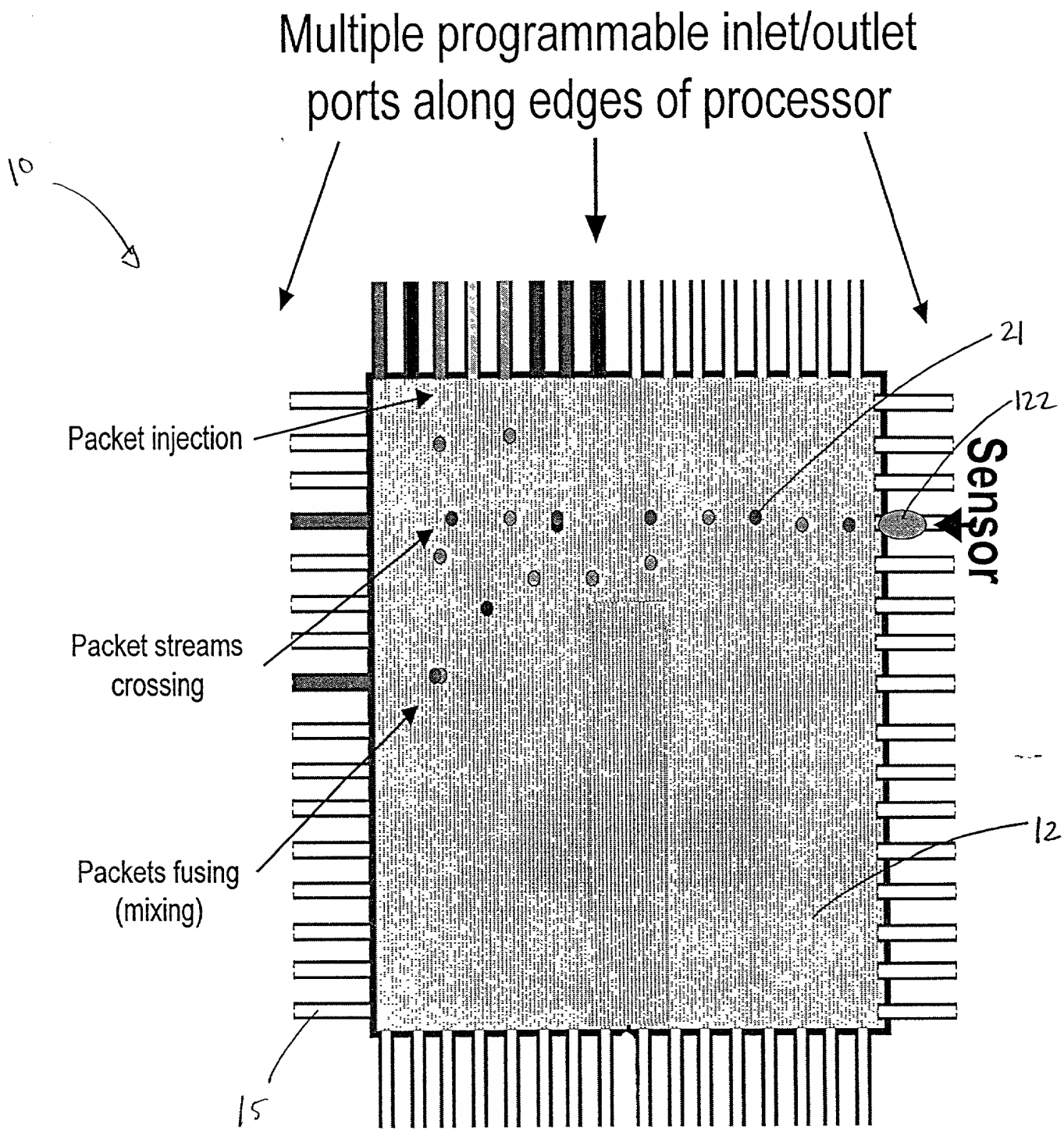
Multiple programmable inlet/outlet ports along edges of processor
10
21
122
Sensor
Packet injection
Packet streams crossing
Packets fusing (mixing)
12
15

FIG. 9B

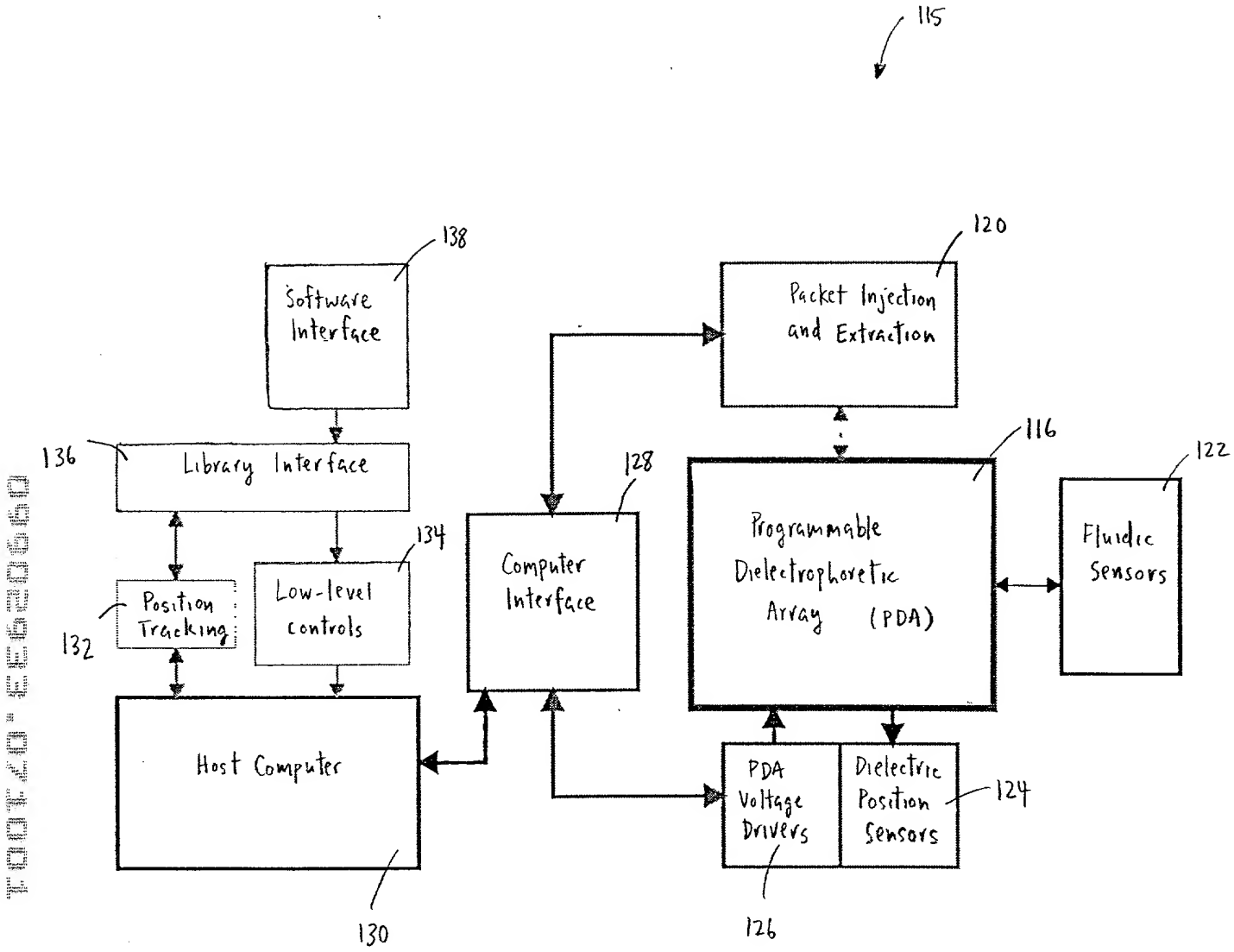
115
138
Software Interface
120
Packet Injection and Extraction
136
Library Interface
128
116
122
Programmable Dielectrophoretic Array (PDA)
Fluidic Sensors
134
Low-level controls
Computer Interface
132
Position Tracking
Host Computer
PDA Voltage Drivers
Dielectric Position Sensors
124
130
126

FIG. 10

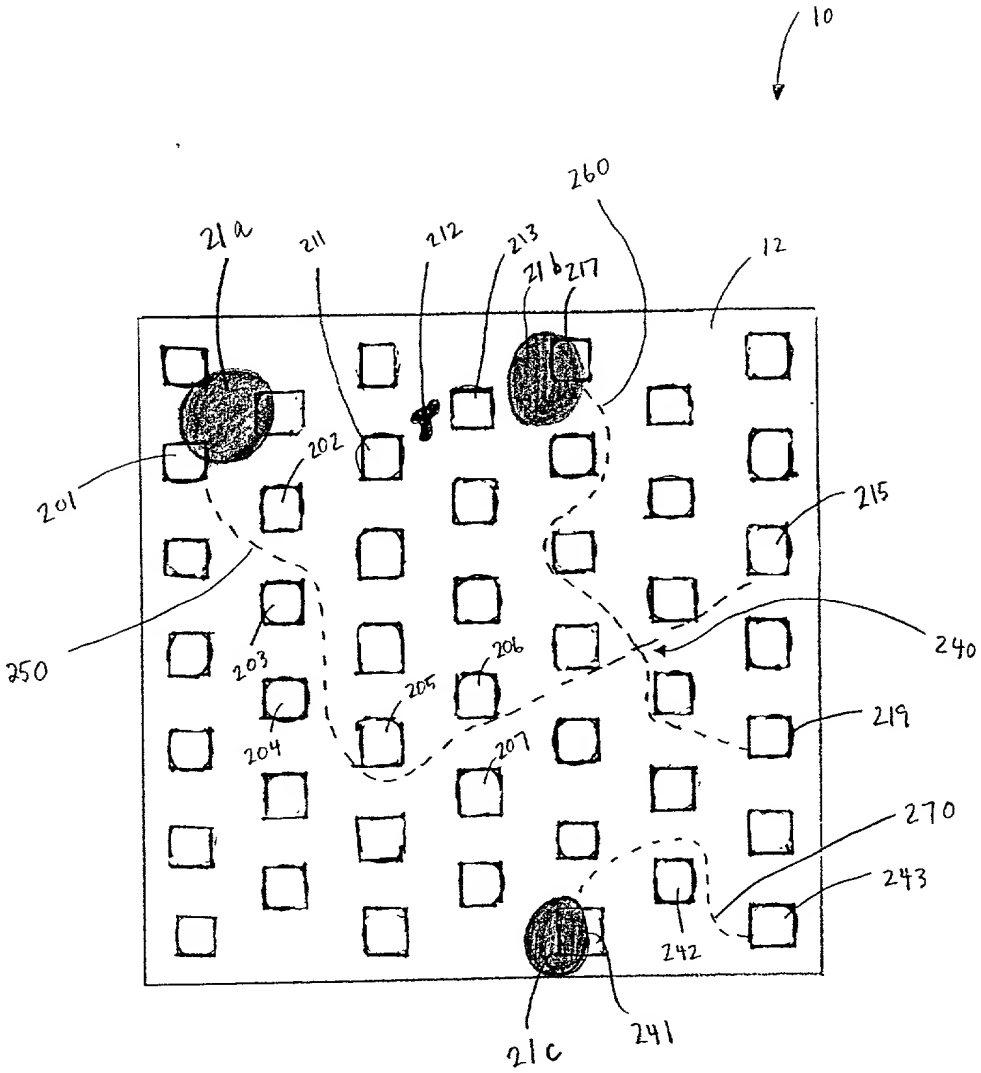
10
260
21a
211
212
213
21b
217
12
201
202
215
250
203
206
240
205
219
204
207
270
243
242
241
21c

FIG. 11

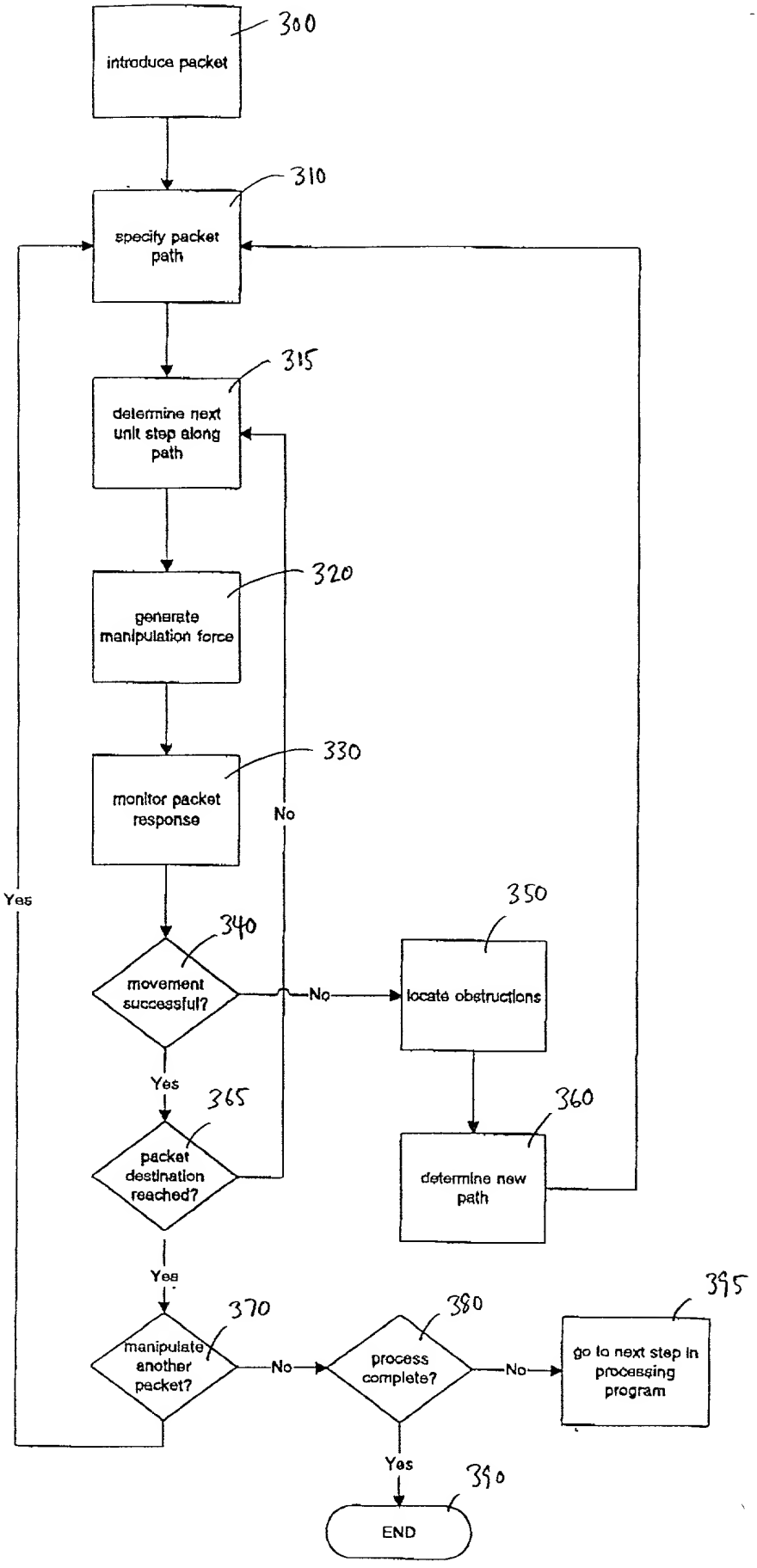
introduce packet
300
specify packet path
310
determine next unit step along path
315
generate manipulation force
320
monitor packet response
330
No
Yes
movement successful?
340
No
locate obstructions
350
Yes
packet destination reached?
365
determine new path
360
Yes
manipulate another packet?
370
No
process complete?
380
No
go to next step in processing program
395
Yes
END
390

FIG. 13